GROUND TRUTH

JOINT BATTLE DAMAGE ASSESSMENT NEWSLETTER

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Joint Battle Damage Enters The HOME STRETCH

The Joint Battle Damage Assessment (JBDA) Joint Test and Evaluation (JT&E) has come to the point where all of our efforts from the past few years are coming to fruition. We not only successfully developed and implemented our battle damage assessment (BDA) enhancements for Unites States Forces Korea (USFK), we conducted contingency tests during Operation IRAQI FREEDOM (OIF). We also conducted our enhanced test during exercise Ulchi Focus Lens 2003 (UFL 03) in the Republic of Korea (ROK). It has taken a lot of determined effort on behalf of the entire JBDA JT&E team to accomplish this work under the program time constraints.

The UFL efforts involved nearly a full year of planning and numerous trips to the ROK for several members of the JBDA team. The logistics of getting test equipment, materials, and personnel deployed to multiple locations throughout the ROK was daunting, but the JBDA enhanced test was successfully executed according to the test plan.

JBDA is currently in the process of analyzing the large quantities of data collected during the UFL 03 enhanced test. This analysis will yield a picture which can be compared to the baseline test picture obtained from UFL 02. JBDA's focus has already started to turn to transitioning our enhancements into test product legacy improvements to the joint BDA process. JBDA has contacted several combatant commands, the Joint Staff (JS) J2T (Targeting), and the Joint Targeting School (JTS) to take on and maintain specific enhancements. JBDA plans to institutionalize command, control, communications, computers, and intelligence (C4I) enhancements into the Automated Deep Operations Coordination System (ADOCS) and other systems of record. We will rewrite the USFK Joint BDA Guide in conjunction with United States Joint Forces Command (USJFCOM), release it as the Commander's Handbook for Joint Battle Damage Assessment, and post it in the Joint Electronic Library. The BDA training CDs will be sent to the combatant commands for use in training their permanent and augmentee BDA analysts as well as to the joint and service schools. The content of the CDs will be updated and expanded by the JTS, and the training modules will be hosted by USJFCOM or distributed via CD.

JBDA is also continuing to work with United States Central Command (USCENTCOM) and other combatant commands to apply enhancements developed for USFK to their respective BDA operations. The enhancements will be either made generic for broad applicability or custom-tailored to specific theaters.

While the primary test events for JBDA are now complete, the work yet to be accomplished is vital to the overall success of the JBDA JT&E. We will continue with our efforts at a high level for the foreseeable future.

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THE MISSION OF JBDA

JBDA is chartered to employ multi-Service and other Department of Defense agency support, personnel, and equipment to investigate, evaluate, and improve BDA for the joint force commander to facilitate operational decision-making. JBDA will accomplish this mission by:

- Identifying, testing, and assessing current BDA processes and procedures, and recommending and evaluating enhancements
- Characterizing current BDA training and manpower authorizations for unified command, Service, and agency BDA personnel, and recommending and evaluating training improvements
- Defining system and architecture interoperability, and nominating and testing solutions (enhancements)

ULCHI FOCUS LENS 2003 (UFL 03)

In September 2003, the Joint Battle Damage Assessment (JBDA) team reassembled at its headquarters in Suffolk, Virginia to undertake the task of reconstructing the data collected during the enhanced battle damage assessment (BDA) test, UFL 03. Data analysis will result in usable and actionable recommendations for products to improve BDA within the fixed and maneuver/mobile environments. JBDA will transition useful BDA products to the warfighters in the joint, Service, and coalition communities.

With a wide variety of data, including player interviews, subject matter expert observations, United States Forces Korea (USFK) After Action Reports, and Joint Universal Lessons Learned, the challenge was to appropriately combine qualitative and quantitative results to provide a basis for conclusions on the enhanced BDA test. Thus far, analysis of the data has identified trends and issues resulting from the employment of the enhancements provided by JBDA, with significant improvement in the following areas:

- Improved, comprehensive planning process for BDA
- Streamlined joint command, control, communications, computers, and intelligence (C4I) systems connectivity
- Improved advanced and on-site training, specifically for augmentees

Some initial observations of the data have revealed the following additional insight into enhancements provided by JBDA and employed during the UFL 03 test:

- Improved multi-level secure information sharing among components and coalition partners (also verified during Operation IRAQI FREEDOM (OIF))
- Development of portable, PC-based BDA training modules to enhance augmentee and permanent-party BDA analytical capabilities

- Development of "pushed BDA" to decision-makers (supported components' battle captains) on decisive points or fixed targets identified as a priority in the

campaign plan, as well as to components involved with main effort/objective areas and high-priority targets
- Development of a shared database to report and display information to all component Ops-Intel BDA producers and consumers
- Upgrade of the Global Command and Control System – Korea (GCCS-K) network configuration (among other C4I systems) to support federated BDA partners

As data analysis progresses and conclusions are refined, JBDA will continue to develop DOTMLP-F (doctrine, organization, training, materiel, leadership, personnel, and facilities) recommendations for fixed and maneuver/mobile processes to improve BDA. JBDA's aim is to create effective tools and concepts for producing and sharing joint BDA information for "Support to the Joint Force Commander to facilitate operational decision-making" as described in the JBDA charter. Specific objectives of this process development include:

- Seamless interoperability of command and control (C2) systems
- Development of a common C2 system among components
- Fusion of existing databases and real-time feeds
- Horizontal information sharing in near-real-time
- Complete, coherent, and accurate BDA information to increase situational awareness within required timelines
- Providing actionable, high-quality data for timely decisions with the display of what is known and unknown

JBDA's efforts have been centered on developing the best way, at the collateral security level, to fuse existing BDA databases and to improve DOTMLP-F factors impacting joint BDA to get actionable, decision quality information to the warfighter. Some feedback from the UFL 03 JBDA enhancement test, as outlined by USFK BDA cells, includes:

- **Accomplished all BDA training objectives**
  - Trained with all components and federated BDA partners, and exercised all systems to "plug and fight" in a joint and coalition theater
  - Effective theater training of newly assigned personnel and augmentees increased BDA cell skill levels
- **Validated theater federated tactics, techniques, and procedures (TTP)**
  - Exercised information and communication improvements between the United States (US) and the Republic of Korea (ROK)
  - Covered all target set BDA
  - Developed new maneuver/mobile TTP
- **Equipped warfighters with adequate automation tools to complete the mission**
  - Single View Target Status Display (SVTSD), Automated Deep Operations Coordination System (ADOCS) improvements, BDA Theater Dissemination web page, TTP for Special Operations Forces (SOF) reporting, and maneuver/mobile forces BDA web page

As after any test, some issues remain unresolved and some new issues are being identified. For example, a recurring issue concerns augmentees arriving in theater without adequate training in the latest technologies and TTP. Issues of this nature will be assessed, and any that are determined to be of significant impact will be addressed.

Overall, JBDA was tremendously successful in accomplishing its objectives, and the resultant enhanced BDA process in UFL 03 can be counted among the most efficient and effective to date. BDA training, collection, analysis, and information dissemination are becoming integrated with rapid combat operations and are improving with the help of the JBDA JT&E. The JBDA final report will be published in August 2004.

BDA IN OPERATION IRAQI FREEDOM

(What has changed since Desert Storm)

Since battle damage assessment (BDA) shortfalls were highlighted in Operation DESERT STORM, it has been alleged to give Intelligence a black eye. In actuality, however, BDA has improved by leaps and bounds since 1990. Through the Joint Chiefs of Staff (JCS)/J2-Targets, the federated BDA process was created. The Defense Intelligence Agency (DIA) published an agreed upon source document for BDA (the BDA Reference Handbook) and an unclassified handbook (the BDA Quick Guide) which improved terminology. The procedures appeared to work well during Operations DESERT FOX and SOUTHERN WATCH, but not during Operation IRAQI FREEDOM (OIF). Determining what went wrong requires looking at some of the contributing factors: collection management, situational awareness, federation of BDA, communications architecture, operational reporting, and systems applications.

Identifying a single issue or point of failure for BDA is difficult. As part of the last phase (Combat Assessment phase) of the joint targeting cycle, BDA depends on the previous steps of the cycle to be successful. BDA relies heavily on collection and post-

strike reporting, but is usually the last collection priority. BDA in OIF was no different, and this setback was further exacerbated by Collection Management personnel trying to circumvent the problem of the Execution Cell changing targets late in the Air Tasking Order (ATO) process. To preclude tasking collection assets to go against planned targets that were not struck, Collection Managers waited a full day before putting fragged targets on the collection deck for BDA collection. Because of constant changes to the ATO, the only sources available to BDA cells for determining which targets were struck were Mission Reports (MISREPs). MISREPs, however, left much to be desired because multiple formats were used "many of which were filled with errors,"[1] others took an inordinate amount of time to get to the Combined Air Operations Center (CAOC), and some contained little useful BDA information. Compounding these problems was the time required to transmit MISREPs from the CAOC to United States Central Command's (USCENTCOM's) BDA production cell.

The ability of the BDA cells to track changes to ATOs and gain sufficient situational awareness has been an acknowledged persistent problem. In OIF, this problem affected both Intelligence and Operations. The CAOC does not have an adequate tool to track all changes to ATOs after their publication, showing what targets were added/deleted, which aircraft/weapons, and Time-on-Target (TOT) were changed, and other such important informational items. Like other CAOC sections, the BDA cell experienced difficulty acquiring current information concerning ATO execution and reacting appropriately to those changes in sufficient time. If Operations cannot determine which targets were struck, BDA analysts do not know which targets to assess. Collection Management also needs to be aware of ATO changes to promptly update the collection scheme to account for new and dropped targets. In addition, federated BDA partners (components and supporting combatant commands and national agencies) need to know about ATO changes to conduct BDA on their assigned targets.

Unlike Operation DESERT FOX, the federated BDA infrastructure for OIF was not fully implemented. Federated BDA is a structure in which a supporting command/organization produces BDA on specified target categories under the auspices of the warfighting combatant command (who also retains final authority for BDA calls). USCENTCOM did not fully distribute the BDA workload to the federated BDA partners as it produced the vast majority of all Phase I and II BDA reports.

Identifying a single issue or point of failure for BDA is difficult.

Communications infrastructure and software applications also impacted BDA. Even though there had been ongoing operations in Southwest Asia since Operation DESERT STORM, the communications requirement for the additional fighters, bombers, and intelligence, surveillance, and reconnaissance (ISR) assets and their reporting requirements were significantly greater for OIF. One of the largest bandwidth hogs, weapon systems video (WSV)[2], was expected to be a major BDA input. However, WSV did not play the anticipated role due to bandwidth limitations and transmission time required to reach back to USCENTCOM in Tampa, Florida. The United States Central Air Force (USCENTAF) targeting architecture (to which BDA belonged) was installed just days before the start of combat and was not fully tested prior to hostilities. For targeting purposes, the theater communications could not support BDA requirements because the MISREP module within the Interim Targeting Solution (ITS) did not support all flying unit reporting timelines. This had a cascading effect on the BDA quick look module, making it too manpower-intensive to use. (All MISREPs would have had to be retyped into ITS for it to work.)

Because of these shortfalls, it should be no surprise that BDA reporting was slow. BDA did not, however, take 72 hours as often cited. Under ideal conditions, an initial (Phase I) BDA report is produced approximately one hour after receipt of information, with the more detailed Phase II report prepared about 6 hours later. Information in this case includes sources such as a MISREPs, WSV, and imagery. However, there were no ideal conditions during OIF. Collection was back-dated a day to ensure targets were actually struck, and MISREPs and WSV were often slow getting to the CAOC. The CAOC, in turn, had to retransmit the reports to USCENTCOM.

BDA reporting from USCENTCOM was generally accurate, providing good physical and functional assessments of damage to the target. The issue was timeliness, as commanders wanted strike results much quicker than they could be produced and disseminated. Once BDA cells get behind the OPTEMPO, they cannot catch up until after the operation ends or there is a pause in activity. Unlike Operation ALLIED FORCE where there were pauses, or at least reduced OPTEMPO, because of weather, the only pause for OIF was at the end of combat operations. In addition, what is important to the commander today may not be important tomorrow, causing the BDA cells to continuously refocus their efforts.

BDA for maneuver/mobile targets was also problematic. With over 75 percent

of the strike missions falling into the killbox/Close Air Support (CAS) arena, it was either USCENTCOM's or the Joint Force Land Component Commander's responsibility to determine the effectiveness of the strikes. According to an officer involved in OIF, "Shaping operations for the Baghdad [Republican Guard] units were delayed due to uncertainty over the status of outlying units, including the Medina Division…."[3] While CAS and air interdiction sorties "pounded the division for four days, CENTCOM and [its land headquarters] continued to depict combat power of the unit from 85 percent to 65 percent…"[4] Based on relatively raw data from aircraft mission reports, the coalition's intelligence staff finally concluded after the fourth day of bombardment that "the unit was likely below 50 percent strength…."[5] It appeared early on that USCENTCOM and the land component differed as to the extent of damage inflicted upon the Iraqis. Because USCENTAF was authorized limited collection, it could not afford to expend collection against ground maneuver forces for BDA purposes.

BDA in itself could have been more responsive, but it is not an end unto itself, and it relies on other processes to work. Therefore, BDA was not as bad as advertised.

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[1]Elaine M. Grossman, "Battle Damage Assessment Process Found Unwieldy in Iraq Combat," Inside The Pentagon, June 19, 2003, page 1 (article from 19 June 2003 Early Bird)

[2]Dr. Rebecca Grant, "29.51% of Weapons, or 8,618, Dropped During Operation IRAQI FREEDOM were Laser-Guided Weapons," Gulf War II, Air and Space Power Led the Way, An Air Force Association Special Report, September 2003, page 31

[3]Elaine M. Grossman, "Battle Damage Assessment Process Found Unwieldy in Iraq Combat," Inside The Pentagon, June 19, 2003, page 1 (article from 19 June 2003 Early Bird)

[4]Ibid

[5]Ibid

BDA BY EXCEPTION

"Battle damage assessment (BDA) by Exception" is a concept being talked about within the Air Force. During Operation SOUTHERN WATCH, Joint Task Force Southern Watch was not allowed to produce or make official BDA calls, as this was the responsibility of the United States Central Command (USCENTCOM). However, the planners at the Combined Air Operations Center (CAOC) needed to know the BDA to plan for the next move. United States Central Air Force (USCENTAF) targets/BDA developed a Phase 0 call, which essentially took the Navy concept of bomb hit assessment (BHA) and made it an official BDA call (one USCENTCOM and the CAOC planners could use).

BHA is essentially an assessment of the weapon impact location and whether it hit the target, and it is put in the MISREP. This assessment is made by the squadron intelligence officer or, possibly, the weapons officer, with input from the aircrew during the debrief and review of the weapon systems video (WSV).

Prior to the start of Operation IRAQI FREEDOM (OIF), the USCENTAF BDA cell moved to make the Phase 0 call a Phase I call, and USCENTCOM did not disapprove. It was intended that all MISREPs with WSV confirmation would be considered Phase I calls by USCENTAF to better support the Combined Forces Air Component Commander (CFACC) and his planners with timely BDA.

The concept of BDA by Exception is moving one step further ahead by expanding the BHA concept to include some of the non-WSV weapons drops. With the widespread use of precision-guided munitions, from approximately 9 percent during Operation DESERT STORM to approximately 68 percent (19,948) during OIF, BDA by Exception would have the potential to drastically decrease the number of targets needing near-real-time BDA to just under half (9,171 were GPS vice laser-guided munitions). This would include those targets needing near-real-time BDA being defined as high-value targets, as defined by the commander that absolutely require BDA. For OIF, the number of targets (requiring conventional BDA analysis) from the JFACC perspective would probably have been about 60.

The accuracy and lethality of weapons has increased dramatically since Vietnam. Now non-man-in-the-loop weapons are guided to precise points on the ground of less than 50 feet. Results of the Air Force Munitions Effectiveness Assessment Study from Operation ENDURING FREEDOM showed that Joint Direct Attack Munitions (JDAMs) are even more accurate than originally stated. Given that, and targeteers/ weapons officers weapon-eering the target/aimpoints for the proper levels of required damage, the immediate need to confirm the level of damage that has been projected is in question. For example, Figure 1 shows the results of a GBU-31 dropped from a non-WSV capable aircraft against a single-story building in Iraq. If the building was weaponeeered to a 70 percent probability of achieving the required level of damage, combined with the pilot's reporting in the mission debrief, there was good indication of weapons release. The target, while important, was not a commander's high-interest target. Therefore, there was no need to immediately request collection. Based on the MISREP and the weaponeering, the BDA cell could have "assessed" the target as destroyed. As OPTEMPO changes and collection assets become available, official Phase I and II BDA can be accomplished, if necessary. This is essentially what is being done with ground support missions that have

Figure 1. Results of GBU-31 on Single-Story Building in Iraq

"no eyes on target," as the Air Force generally does not have the collection assets available to support all of these weapons drops.

With BDA by Exception, reverse weaponeering may be required when aircraft/weapons are diverted to other targets to ensure the proper level of damage required is actually within the capabilities of weapons dropped on the target. The actual weapon used, mensuration, and objectives will also need to be taken into consideration. Finally, there has to be buy-in by the commander and his staff, especially from Operations, for this to be successful.

BDA by Exception may provide the commander with what he has been missing in the past - results in a timely manner. In a large number of cases, it is better to give him an assessment of what probably happened than to wait, sometimes for days, until the official results of what actually happened are available, as it may be too late. This will result in a more pro-active BDA cell vice a historian type of cell.

Single View Target Status Display (SVTSD)

Problem Domain

A modern campaign usually begins with an extended air operation in which a set of pre-planned and well-known targets are struck in order of importance. The intent is to inflict sufficient damage to both combat/support units and logistics facilities so that a ground war may proceed with reduced risk. The campaign occurs in phases, usually focusing on air defense first to pave the way for attacks on positions behind enemy lines. Over time, the operations tempo (OPTEMPO) of these air campaigns has increased as more precise, more effective weapons and more targets are serviced due to increased capabilities. This increase in OPTEMPO has made it increasingly difficult for the intelligence community to keep decision-makers supplied with timely reporting on the status of targets on the air/integrated tasking order (A/ITO). Consequently, decisions are being made based on weapons-effects and other estimates without knowing that strike and ISR reports are available, but not processed. Furthermore, because of the distributed-model and component-specific C4I systems used by today's commands to track this data, operators and analysts must piece together information from multiple sources, sometimes using manual, time-consuming processes.

The growing chasm between the pace of operations and the pace of intelligence dissemination has produced an unacceptable tactical situation for the modern warfighter. What is needed is a means to capture a target-centric, up-to-the-minute view of the A/ITO that can be customized according to the mission of each user. This will enable operational decision makers the situational awareness to conduct a more efficient, less costly campaign, and will allow BDA analysts to provide more timely and accurate analysis of the targets that matter right now.

The United States Forces Korea Solution: Single View Target Status Display (SVTSD)

Based on the Korean theater of operations, JBDA designed, developed, and deployed a SVTSD prototype that provides the United States Forces Korea (USFK):

- A target-centric view of the current state of the ITO
- A set of rules to assign significance to the contents of that view (and a color code scheme to indicate the significance)
- The capability to define a set of targets deemed "high-interest" and track only those targets
- A web-based single source for targeting data within component-specific, distributed C4I systems in the theater
- Up-to-the-minute status on the availability of intelligence reporting on selected targets

The Single View Target Status Display (SVTSD) was a three-part system.

Part I: The Data Access System

For UFL 03 JBDA designed a data access scheme that would handle the collection, merging, deconfliction, and

translation of target-related data from Interim Targeting Solution (ITS), Automated Deep Operations Coordination System (ADOCS), and All-Source Analysis System (ASAS) at the Ground Component Command – Combined Analysis and Control Center (GCC-CACC). Each data access agent would poll its respective C4I system at a normal interval and update our database with reports from recent missions, setting status flags for all targets related to those missions. This system ran transparently and continually on our server. Data access was tricky because of the differences in how each system exposed its data. For example, while ITS has a simple relational model, allowing pull access via a standard protocol, ADOCS data was pushed to an FTP site in the form of pipe-delimited files that had to be read in and parsed.

Part II: The Target-List/Target-Folder Interface

The data access agents only collected data that was relevant to targets in our database. Each authorized user was able to conduct configurable searches against all the available C4I systems and create lists of targets. These lists could be from a single source or multiple sources. Once the user created a list, the list could be stored and retrieved later. If a target was selected that did not already exist in our local repository, it was added. Using this aggregate target set, each data access agent was able to filter intelligently on data returned by its C4I database.

An important aspect of the interface was how the target lists were displayed once they were created. Users could configure a display to show any number of target lists in an all-in-one view or a one-per-page view that refreshed or rotated at an interval they set. Since some lists may be long, the user could also set a targets-per-page limit. The display showed the following data:

- Target ID – Usually the Basic Encyclopedia (BE) Number/O-Suffix pair, though ground targets were identified by a GCCKN number
- Description – A brief description of the target
- MSN – The next mission scheduled to attack the target or, if none, the last mission to attack the target
- Report Status – Indicated the highest value report type available for the mission indicated in the MSN column
- BDA – Showed the phase or level of BDA that was available, where it originated from (ADOCS or ITS), and a code indicating the Phase II functional damage (if applicable)
- RR – The re-attack recommendation indicated by color and the cell that made it
- TOT – The Time-on-Target of the mission indicated in the MSN column
- Collection – The Time-on-Target of any collection asset assigned to gather post-strike intelligence on the target

By clicking on the target ID (identification), the user could view a target folder containing encyclopedic data and a history of all intelligence reports available with information on that target. The reports included mission reports (MISREPs), in-flight reports (INFLTREPs), ADOCS mission data, battle damage assessment (BDA) reports, and collection reports.

Part III: The Business Logic

Each cell was color-coded to indicate the significance of its contents or to provide more information. For example, the MSN column would turn green when it no longer indicated an upcoming mission and, instead, indicated the last mission flown. The Report Status column would turn yellow if the highest level of reporting available was from an INFLTREP and green when a MISREP became available. The idea was to offer a quick look at the intelligence picture on selected targets to indicate which high interest targets required the most attention. This enabled faster and more accurate planning.

The logic that mapped the existence and contents of incoming reports to the displays colors and indicators had to be carefully defined over many months of planning and discussion. This was done to ensure that we understood what information was really important to the operator and analyst, and how it would be used to drive the campaign. For

example, if a mission struck a target and a Hit/No-Hit status was not available, the Report Status field would be yellow to indicate that action should be taken.

The deployment of SVTSD in UFL 03 proved to be tremendously successful. Operators and analysts immediately recognized the tool's value and used it extensively. Interestingly, different cells used the tool in different ways. For example, the Combat Assessment Cell created lists of targets against each defined objective, such as "Disrupt coastal supply lines," to feed to the Operations Assessment Cell the status of BDA at the end of each shift. The Inteligence Duty Officer, as well as other battles staff officers in the Executin Cell, viewed targets on the day's integrated tasking order (ITO) on a large display to support the execution of the Ops plan. Later, during the ground campaign, the Battlefield Coordination Detachment (BCD) used the SVTSD to track attrition information on high-interest ground targets.

The Generic Solution: Abstraction of Core Capabilities

Though the prototype described above is specific to the USFK situation, it is thought that the capabilities provided could be abstracted and engineered to one of the following two ends:

- Integrate into a targeting system of record such as the Joint Targeting Toolbox (JTT)
- Define a baseline framework where all the hinge-points can be resolved for each implementation (i.e., each theater)

Either way, the first step is to determine and generically describe the key capabilities that SVTSD provided USFK. At a high level, SVTSD provided the following:

- A way for each user to view the current target space relevant to them
- A set of rules that assigned significance to the existence and contents of incoming reports
- A central repository for all distributed theater target data that hides the underlying C4I architecture from the end user

What makes the USFK solution impractical for transfer to other theaters is the third feature, which addresses the distributed architecture. ADOCS, ITS, ASAS, and other systems are all used by the various components and have no visibility of one another. It was necessary, therefore, to virtually integrate these systems. JBDA developed rules and logic to determine what data from each system had value, how to merge data into a composite picture, and how to resolve conflicts in data from different systems. These rules simply cannot be abstracted such that they could be pluggable in any architecture; however, with an adequate baseline framework, a custom solution could be designed for each theater. Ideally, for the generic solution, there must be a single repository from which to draw target encyclopedic data and track reports. Regardless, the first two capabilities proved to be of tremendous value during UFL 03 and can easily be abstracted, refined, and presented as an alternative view of the targeting environment.

BDA SYMPOSIUM

The Third Annual BDA Symposium was held 21-22 October 2003 at the JBDA JT&E facility in Suffolk, Virginia. Ninety-four US and Allied participants from around the world shared ideas through briefings and problem-solving working groups, exchanging information on one of the most demanding issues facing the warfighter today. The BDA community was represented by USCENTCOM, USSOUTHCOM, JICPAC, USCENTAF, USEUCOM, USNAVCENT, USMARCENT, JCS/J2T, JFIC, IDA, JUAV-JT&E, NSA/IWSC, USTRANSCOM, SOF groups, DTRA/TDSF, NRO, DIA/NMJIC, USFK/J2/J3, DIA, NAVAIR, USJFCOM, the US Services, Canada, and the Royal Air Force (RAF).

Major General Shaffer, USAF (Ret), the former JCS J2 and currently President of dNovus RDI, was this year's keynote speaker. He began the symposium by presenting a perspective of BDA with thoughts on the future. He provided an outline of doctrinal considerations and perspectives, as well as overviews of the BDA process, a generic BDA cell, OEF/OIF operations, and the Global War on Terrorism. Maj Gen Shaffer offered the following obser-

vations on BDA:

- Effects-based targeting has been in use for many years. It is all about the effects on the target. BDA is the foundation for determining effects.
- Warfighting staffs have difficulty answering the question about effects, that is, "Are we winning the war?"
- Day four of any conflict seems to be critical for BDA. The first few days are focused on ISR of initial fight. Day four requires more information on results for leadership to make coherent decisions.
- BDA analysts find it difficult to determine the desired effects if commanders do not publish the desired effects and objectives in advance.
- The reach-back concept is dependent on the federated support paradigm.
- Federated forces are not formally "chopped" to the combatant commander. This needs to be changed; they should be assigned forward just as we do other supporting forces.
- C2 and ISR are critical to BDA. ISR assets need to be commanded, not managed.
- BDA is often conducted as a back-end loaded function when it needs to be front-end loaded. That is why it continues to fail.
- Lessons learned from any war can be hijacked by the process. After lessons are written down and submitted up the chain of command for review, they can be filtered and altered from the original intent, diluting the lesson learned.
- OIF commanders applied lessons learned from OAF.
- UAVs launched a new era in BDA; modern assets provide commanders with persistent ISR capabilities.
- The Finding, Fixing, Tracking, Targeting, Engaging, and Assessing (F2T2EA) targeting cycle should be integrated in the C2 and BDA processes.
- BDA is still done in a Cold War mentality. We need to be able to support more flexible, faster-paced operations using all-source Intel and being more selective on what targets truly require imagery confirmation. We cannot think of BDA like we used to.
- Taking the old BDA mode and making it go faster will not work. The purpose of BDA moving from hit/miss to the "effect" we have had on a target is to inform the commander, so he can make better decisions about the next step.
- We are in the age of all-source ISR and BDA; we are beyond look-shoot-look.
- Things are going wrong when the JTF and components are not talking.
- BDA phases need to be re-examined in light of new warfighting paradigms.
- Need to take risks looking for the next target, not confirming precision weapon hits.
- Targeting and BDA are mutually dependant.
- Need a tool to project the effect of changes to the plan.

Maj Gen Shaffer was followed by briefings by other symposium participants, including coverage of BDA operations during OIF from air and ground perspectives, a J2T overview, and the USFK Combined Effects Synchronization Cell reorganization. At the end of the first day, three working groups were formed to discuss and recommend solutions to enhance the BDA process. The three groups were Mobile and Maneuver BDA, Combat Assessment, and Federated BDA Systems. Some of the issues reported by the groups discussed included the following:

Mobile and Maneuver:

- Maneuver reporting flow less than optimum
- Value of "bean counting" diminishing
- Measuring extent of damage is the old way of doing BDA
- Ground and air BDA doctrine differs

Combat Assessment:

- Defining and standardizing terminology
- Establishing document and data standards
- Incorporating the new concepts into TTP
- Integration of kinetic vs. non-kinetic attacks
- ISR requirements vs. allocation for BDA
- Commander's level of risk acceptance in BDA assessment or prediction
- Need for training of leadership in the decision process
- BDA or assessment architecture
- Chartering a CA working group

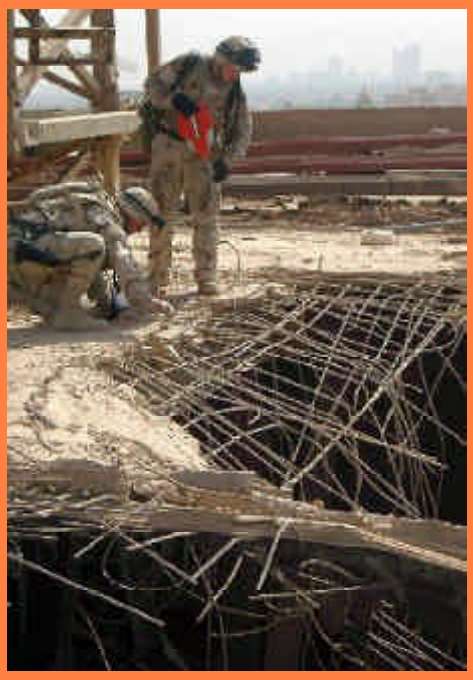
Federated BDA Partnerships:

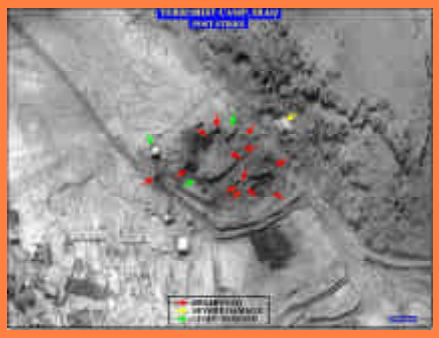
- Identifying partners early
- Exercising federations regularly
- Need for partners to chop to the forward supported commander (OPCON)
- Clarity of roles and responsibilities of each partner
- Identification of billets and spaces for partners
- Coordination of federated C4I tools and support equipment
- Development of TTP for partners
- Chain of command definition of who can task whom
- Coordination of augmentation with federated planning
- Placing LNOs from federated partners at forward locations
- Developing standards for security and information release

Overall, the BDA Symposium was a success. JBDA TTP, C4I, and training enhancements significantly improved the accuracy, completeness, and timeliness of BDA as tested in UFL 03. Each of the enhancements was briefed to the assembled BDA stakeholders, and all were endorsed for further development and incorporation into joint and Service architectures and procedures.

Additionally, JBDA cemented its relationship with JCS/J2T, the operational mentor for the test. Based on this re-energized relationship, it is anticipated JCS will champion test products by finding the proper legacy home for them and establishing a means by which they can be tracked to fruition. JBDA also welcomes the opportunity to work closely with J2T on its resurrected Combat Assessment Working Group (CAWG). The CAWG will be the national/international forum by which JBDA will continue to vet their test products.

At the conclusion of the symposium, JBDA transition leads met with each of the unified command representatives to map a tentative way ahead. The transition of test products to the warfighters will be promulgated in the JBDA Test Product Transfer Plan that JBDA senior planners will take to each of the COCOMs: USFK, USPACOM, USCENTCOM, USEUCOM, and USJFCOM. A formal out-brief will follow with each theater's J2. Over the course of the next year, JBDA will publish its final test report and transfer JBDA test products to warfighters by institutionalizing them in legacy systems and incorporating them into DOD doctrine and TTP.

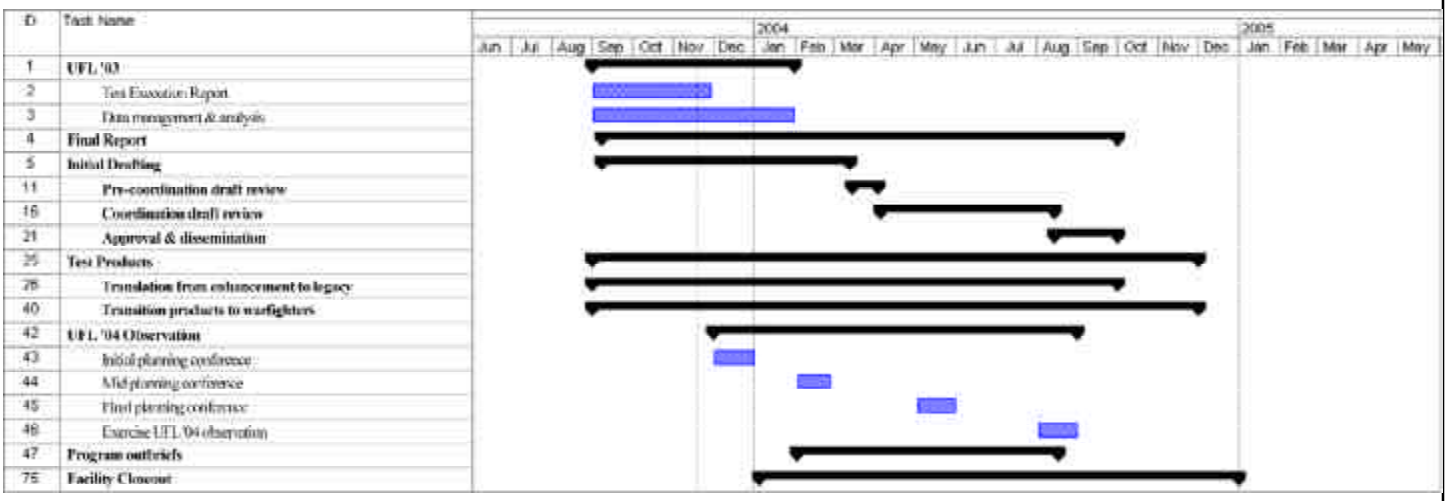




The CAWG will hold its first formal meeting in
Vienna, Virginia,
15-16 December 2003.
For infomation contact:
Mr. Sean Murphy, sean.murphy@js.pentagon.mil or
TSgt James Jones, jonesjd@js.pentagon.mil at JCS/J2T
DSN 222-0515
COMM 703-692-0515

JBDA Future Activities

Test Product Transition	– Sep 03 – Dec 04
Senior Mentor Seminar	– Dec 03
Program Outbriefs	– Jan – Dec 04
Final Report	– Summer 04
Program Close	– Dec 04



Joint Battle Damage Assessment GROUND TRUTH

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